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FOREIGN INTELLIGENCE.

On Insurance in France against Hail, Frost, Inundations, and Mortality of Cattle. (Translated and abridged, by S. B., from a Pamphlet by M. le Hir, Avocat à la Cour Impériale, Juge de Paix Suppléant du XI^e Arrondissement, Foreign Correspondent of the Institute of Actuaries.)

In preceding numbers of this *Journal* we have given various statements showing the very great progress which has been made in the business of fire insurance in France; and in vol. iii., p. 56, will be found a notice of hail insurance by Mutual Companies in France; but M. le Hir, of Paris, who is one of the corresponding members of the Institute, has paid so much attention to the subject of all the four classes of insurance above referred to, and collected the statistics so accurately, with the view of carrying out a great scheme of mutual insurance only partially dependent on the Government, that we propose to avail ourselves of his labours to give some new and striking information which he has collected to a recent period. The original documents, showing the losses experienced in different communes, are preserved in the Ministry of Agriculture and Commerce in Paris; forwarded by the Prefects of Departments as a guide to the Government in the distribution of the succour to be afforded to the agricultural interest suffering from these calamities. M. le Hir possesses no less than 12,000 statements, comprising the years 1826 to 1858, classified according to departments, arrondissements, cantons, and communes, and showing, in each of the 32 years, how frequently each commune of France has been afflicted with these scourges, and the total amount of losses experienced.

The necessity of these classes of insurance is demonstrated by the frightful disasters to which the agricultural interest has been exposed. The mean annual losses by hail, frost, inundations, or mortality of cattle, are estimated at 100 millions of francs (£4,000,000 sterling). The ravages of hail alone amounted, in 1839, to 117 millions of francs (£4,680,000), and in 1840, 1846, and 1856, the towns and lands bordering upon the great rivers of France suffered terribly from inundations.

The more considerable, the more sudden, the more unequal is the damage caused by such calamities, the more useful and effectual appears the principle of assurance; for it is nothing more than the distribution over a number of years and a multitude of persons, of those heavy losses which may otherwise fall on a single individual or in a single year.

At the present time none of these classes of insurance are very prevalent in France—some not at all; were it otherwise, ruin would often be averted, and the losses less sensibly felt. Mutual assurance, there can be no doubt, might be established, upon a broad and stable basis, by the aid of private institutions; but failing this, the Government ought, unquestion-

ably, to meet so great a want. Some ardent economists, however, hasty in innovations, possessing more imagination than experience, have lately urged upon the Government the dangerous attempt to undertake all classes of insurance, including fire insurance; to render insurance obligatory, and to convert a premium into a tax. Such a principle requires some consideration.

There is no country in the world in which fire insurance has extended more rapidly or widely than in France, or in which it has attained a greater degree of perfection, especially since the development of mutual insurance and the happy influence which it exercises.

The Proprietary and Mutual Fire Insurance Companies together insured against fire property to the amount of 43 milliards of francs (£1,720,000,000) at the close of 1855. The average cost thereof, including all kinds of risks (theatres, manufactories, houses of wood, thatched houses, furniture, combustible or inflammable stores) was 84 cents per 1,000 francs of assured value (1s. 8d. per £100), or 97 cents in Proprietary Companies, and 50 cents in Mutual Companies. In England, the premium is computed to be equal to 2 francs per 1,000 francs insured (4s. per £100).

Seeing the great extent to which fire insurance has been carried, and the extremely low premiums which suffice for the risks, the Government may safely abstain from interference with this class of insurance, and yet favour the establishment of great mutual associations for the other risks already referred to. But a great question arises, whether, under any circumstances, these insurances should be made obligatory. At the present time such a process would probably be very unpopular, and it would seem more advisable to attract the public by favourable conditions and good guarantees, and when its benefits are more generally understood, the question of making it obligatory may be more easily discussed. Under any circumstances, it is recommended that these risks should be undertaken on the principle of mutuality; for the absolute guarantee, at fixed rates, for risks of so uncertain and varying a character would lead to evils as great as those which at present exist. For instance: the losses by hail in France were, in 1839, 117,000,000 fr. (£4,680,000); in 1830, 46,000,000 fr. (£1,840,000); in 1831, 54,000,000 fr. (£2,160,000); in 1844, 57,000,000 fr. (£2,280,000); in 1845, 50,000,000 fr. (£2,000,000); but, for the year 1826, the losses were only 22,000,000 fr. (£880,000); in 1833, 21,000,000 fr. (£840,000); in 1850, 12,000,000 fr. (£480,000); in 1851, 15,000,000 fr. (£600,000).

The inundations of 1840 and 1846, of which the first caused losses amounting to 42,000,000 fr. (£1,680,000), and the second, 39,000,000 fr. (£1,560,000), appeared as if they could not be easily surpassed; yet, in 1856, these losses were doubled, and even trebled, whilst in some years they do not exceed 3, 4, or 5 millions of francs damage (£120,000 to £200,000).

A still greater irregularity exists in the annual losses of cattle by contagious diseases. M. Loiset, in a Report to the Constituent Assembly (*Moniteur*, 8th May, 1849), recalls the frightful losses occasioned throughout Europe by the contagion to which cattle were subject in 1711, 1740, 1770, 1796, and 1815. In the period comprised between 1711 and 1796, the agricultural interest is computed, by Dr. Faust, to have lost, in France and Belgium, 10 millions of heads of cattle, equivalent in value to 2 milliards (£80,000,000).

From 1827 to 1846, pleuro-pneumonia has carried off, in the Département du Nord alone, 212,800 cattle, the value of which may be reckoned at about 52 millions of francs (£2,080,000).

The losses by frost present results still more uncertain. In some years, entire departments, the fourth or the third part of France, are subjected to total loss. How, then, could the Government, which has to prepare its statement of receipts and expenditure from year to year, run the risk of fluctuations so great by guaranteeing against these dangers at a fixed rate! The Government, would, in fact, be forced to the necessity of protecting itself by demanding a tax much greater than is really necessary to meet the losses and expenses of administration. Thus, in 1848, when the Government of the Republic entertained the design of undertaking the whole fire insurances of France, the rate was fixed at 1 franc per 1,000 (*see* the statement of M. Duclerc, then Minister of Finance, at the sitting of the Assemblée Nationale, 15th June, 1848); although it might be demonstrated that, if the whole 120 milliards of francs which constitute the value of fire insurable property in France (£4,800,000,000) were insured, the losses and bare expenses could be met by a contribution of 29 centimes per 1,000 francs (7*d.* per £100). The difference, which would have been a surcharge if the proposition of M. Duclerc had been carried, amounted to no less than an annual tax against the insured of 85,200,000 fr. (£3,408,000).

If such would have been the effect of fire insurance by the State, greater still would be the relative tax imposed if it were to undertake the classes of risks, such as hail, inundation, &c., in which the fluctuations being greater, the probability is that the real charge would be at least doubled; and, as the annual average losses in the four classes under review amount to 100 millions of francs, another 100 millions (£4,000,000) would be the extra tax levied on the assured.

But, it may be objected, if assurance be not obligatory no one will insure. The motives urging to it, however, will be sufficiently apparent—(1) because it is proposed that the Government should guarantee the good administration and the proper distribution of the large capital stock which will be annually received for the payment of the current losses and the reserves; (2) that the regulations of assurance should be well defined and the right of each assurer in the common fund well guaranteed; (3) that the classification of the risks be carefully effected, and no kind of property be liable to a tax beyond the value of the risk to which it is actually exposed—the want of such classification having been hitherto the principal cause of the want of success in hail and cattle insurance in France.

With these conditions, landed proprietors would be soon attracted to the advantages of the system; and the farmer, even if he were himself indisposed, would probably soon be compelled by the owner of land to avail himself of it. The article 1769 of the Code Napoléon, which permits an allowance to the tenant of a part of the rent if he has lost the whole, or even half, of his harvest by fortuitous causes, would inspire in the landlord the thought of requiring the farmer to insure, and would cause the insertion of some such binding clause in all the agricultural leases.

And, lastly, it is evident that when the assurance of agricultural risks is placed upon a firm footing, the cultivators of land will be unable to obtain advances upon credit, either from individuals or public institutions, except upon the condition of insuring his crops and his cattle, which are often the only security he has to offer.

There would then be some hope, when the practice of such insurance has become common and its benefits understood, of making it obligatory—a measure which would be an oppression to the already over-burdened farmer if the classification of risks were defective, and the contributions, in however small a degree, beyond the rate which would suffice to meet the loss.

A few general rules may be laid down, such as are essential for the classes of agricultural risks and yet differ in some respects from the ordinary statutes of Mutual Societies:—

1. These funds, being under the sanction of Government, ought to embrace within the limits of insurance every object exposed to the risk, because, when once established, private Companies would have no chance of success in a similar sphere of action. Thus, hail insurance would include the risk of breakage of glass in greenhouses, &c.; insurance against inundations would be extended to houses, buildings, &c., in town or country, with the furniture they contain, grain, provisions, agricultural materials, animals, &c.; insurance against mortality of cattle should include also animals used in trade, &c.

2. The proprietor or cultivator of lands should be under the obligation to insure the whole value of his property exposed to risk—the whole of his crops, grass, grain, fruit trees, vines, wood, and agricultural produce whatever, if against the risks of hail; his house, crops, merchandise, &c., against inundations; all the animals used in his business, horses, oxen, cows, pigs, sheep, &c., if against the mortality of cattle. This would be necessary, to increase the number and the values insured, and prevent the risks falling only on the most dangerous classes of objects.

3. There should be a rule that no indemnity would be given where the loss was less than one-tenth part of the total value of the same kind of crops; and when the loss is in excess of that amount it should always be first deducted. This rule only to apply to each class of produce, not to the total value of all the agricultural stock.

4. As to the rates of contributions, they comprise the payments for losses and the costs of management of the Society—distinguishing therein the charges of administration, to afford comparison of the saving effected over existing Mutual Societies of a similar kind. The latter need not exceed 50 centimes per 1,000 francs. The Mutual Hail Insurance Companies at present receive 1·50 fr. to 2·50 fr. per 1,000 fr., and the Cattle Insurance Societies so much as 5 fr. per 1,000 fr. The contributions for losses are proportional to the values of the objects exposed to risk. Thus, vines insured against hail pay a higher contribution than corn, because they are more liable to damage; corn proportionably more than grass; olives and tobacco more than vines. The costs of administration should be distributed in similar proportions, the only way by which the lower classes of risks can be tempted within the range of assurance.

Various other regulations, as to the use of the reserved fund and of the mode of paying losses so as to preserve the equitable rights of all the mutual assurers, are suggested by M. le Hir, but we proceed rather to the classification of the risks and the experience gained by observation.

- I. *Hail insurance.*—Experience demonstrates that storms are subject to certain laws, by which their course is directed, not according to general zones, but in certain sinuous paths, varying greatly in width—so that the

risks arising from hail cannot be estimated by zones, nor by departments, nor arrondissements, nor cantons, but only by communes. Societies for mutual assurance against hail have long since discovered that some localities are more exposed than others to this risk, but not possessing the elementary statistics necessary to determine and assort the risks, they adopted, at first, the distribution by zones or departments. Finding the insufficiency of this arrangement, they endeavoured to remedy it by deciding that, in the first instance, the contributions of each department should be applied to cover the losses peculiar to itself, and the surplus only carried over to other departments in which the operations of the Societies extended; but so long as the contributions of departments which were less exposed were not diminished thereby, it merely served to demonstrate the defects of the system; and no system of assurance could become popular or well established in which the premiums for the risks were not better proportioned.

When the division by zones or departments is not based upon the experience of the Societies themselves, it is usual to regulate the risks by the more northern or southern locality. Thus, France is divided for this purpose into departments "du Midi," "du Centre," or "du Nord"; but the result of statistical inquiries proves the falsity of this classification. Thus, in the number of the departments in which hail is least prevalent, are the departments "du Centre"—La Vendée (standing only 4th in the 86 departments), Les Deux Sèvres (9th), La Loire Inférieure (13th), Maine et Loire (14th), La Haute Vienne (18th), L'Yonne (22nd), and the southern departments, Les Pyrénées Orientales (10th only), La Corse (15th), Le Gard (21st), Le Var (26th), Les Bouches du Rhône (35th), &c.; and amongst the departments in which hail is most prevalent are other departments "du Centre"—Le Rhône (86th), Saône et Loire (81st), Haut Rhin (73rd), Loir et Cher (71st), and even the northern departments, such as Le Nord (53rd), Le Pas de Calais (40th). There ought, at least, to be a further division of the departments on the sea coast; and, even then, if in the greater part hailstorms are but little experienced, there are some which contradict the rule, as Le Nord, Le Pas de Calais, La Charente Inférieure, and, especially, La Gironde (which is 83rd in order).

Again: if the statistics be arranged according to amount of losses in each department, it is likely to deceive; for in departments which are rich, and teeming with produce of greater value, such as La Gironde, Le Rhône, the value of the losses may be considerable and yet the actual number of losses be less than in departments apparently less exposed.

The same irregularities will be observed even in arrondissements, cantons, and communes of the same department, rendering the division by zones or by departments almost impossible; and is it probable that anyone who has for 30 years observed that, not only his commune, but his canton, or even his arrondissement, has not been visited with this plague, would submit to be heavily taxed for the benefit of another? If the contribution was light, he might be induced to assure, not otherwise.

La Société Mutuelle de Toulouse, consulting its own experience, adopted, in 1853, the system of classification by communes, based on the statistical results for 10 years, collected in the communes "du Midi," where its operations are carried on.

The division by communes was also taken, in 1848, by M. Dubouché, as one of the two bases of the classification of hail risks for l'Union

Générale; but, as no distinction was made between the communes devastated once and those in which hailstorms had never occurred, those subject to the smallest risks were deterred from insuring, and the best and most numerous class of business was consequently lost.

The Compagnie Générale d'Assurance, in 1854, was induced to obtain an authorisation to carry on hail insurance business at fixed rates of premium, which it would never have ventured upon but for the true classification of the risks by communes.

The regulation of the risks by locality in communes, and according to the number of times each commune, or the canton and arrondissement in which it is situated, has been struck, offers the great advantage of allowing the lowest risks to be rated at their true value. It is evident that a commune never struck, situated in an arrondissement never struck, runs less risk than a commune never struck which is situated in an arrondissement struck one or more times; and that the degree of risk may be estimated according as a commune never struck is more or less distant from others frequently exposed to risk.

The following table (Table I.) embodies these observations on the division of agricultural risks into classes and according to the risk of locality—the rate per cent. being set against each commune relative to the degree of risk to which it is exposed for various classes of produce; and the agent, being furnished with the position in the scale of each commune in his district, is enabled at once to quote the corresponding premium.

Thus, there are 224 communes in France situated in arrondissements which have never been struck with hail. These communes, according to the table, would pay for the 1st class of agricultural produce—viz., meadow lands, potatoes, beet-root, &c.—only 4 centimes per 100 francs of value insured; for the 2nd class, corn, &c., they would pay only 14 centimes.

By the same table, out of 2,078 communes situated in cantons not struck, the most heavily charged would only pay, for the 1st class of produce, 10 centimes per 100 francs; and, for the 2nd class, only 35 centimes per 100 francs. At this rate we might reckon on insuring the communes even the least exposed to risk in France.

As to communes only struck once by hail, and thus warned of the advantages of insurance, they would only pay, for corn, &c., 70 centimes per 100 francs, a contribution which is by no means extravagant.

The rates for still heavier risks are proportionately low, and yet the costs of management are included.

In order to demonstrate that these contributions are sufficient, it is assumed that the 8th and 9th ranks represent together the mean rate, and from this the following summary is deduced for the total receipts for insurance according to the value of agricultural produce of each class, the total of all being assumed as 6 milliards of francs (£240,000,000):—

Class I.—Total estimated value, 1,600 millions of francs (£64,000,000), which, at 19 centimes per 100 fr., the mean of 8th and 9th ranks, gives, annually	Fr.	£
	.	.
	3,400,000	= 136,000
Class II.—Total value, 2,700 millions of francs (£108,000,000), insured at 665 per 100 fr., gives, annually	17,955,000	718,200
Carried forward	21,355,000	854,200

TABLE I.—*Rates of Contribution per Cent. for Hail Insurance in France (including Costs of Management).*

COMMUNES NOT STRUCK FROM 1826 TO THE END OF 1851, SITUATED IN												COMMUNES STRUCK FROM 1826 TO THE END OF 1851.											
Rank	Arron- disse- ment not struck	Arrondissement not struck, but Canton struck.		Canton struck.					Once.	Twice.	Three times.	Four times.	Five times.	Six times.	Seven times.	Eight times.	Nine times.	Ten times.	Eleven times.	Twelve times.			
		Once	Three times or eight times.	Once.	Two or three times.	Four or six times.	Seven times or more.																
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20				
Number of Communes struck, in each rank, from 1826 to the end of 1851																							
Class I.—Grasses, plants used for fodder, beet-root, potatoes, cabbages, turnips, carrots, chicory, maize, straw, glass placed vertically																							
Class II.—Cereal crops, wheat, barley, oats, spelt, millet, lentils, peas, beans, horse- beans, vetches, madder, chestnuts, fruits used for cider, mulberries, nuts, al- monds																							
Class III.—Plants used for fodder and beet-root cul- tivated for seed, buckwheat, hemp, rapeseed, sesame, ole- agnous plants, mustard, saf- fron, woad, felling thistles, aniseed, coriander, cherries, gooseberries, &c.																							
Class IV.—Flax, hops, onions, tomatos, melons, figs, plums, apricots, nursery trees, osiers, vines, glass placed horizon- tally																							
Class V.—Tobacco, olives																							

Brought forward	21,355,000	854,200
Class III.—Total estimated value, 660 millions of francs (£26,400,000), insured at 95 centimes per 100 fr.	6,270,000	250,800
Class IV.—Total estimated value, 1,000 millions of francs (£40,000,000), insured at fr. 1.425 per 100 fr.	14,250,000	570,000
Class V.—Total estimated value, 40 millions of francs (£1,600,000), insured at fr. 1.90 per 100 fr.	760,000	30,400
Total product of contributions, including charges	42,635,000	1,705,400
Deduct charges for management for the 6 millions of francs, at 5 centimes per 100 fr.	3,000,000	120,000
Leaving for actual losses and other expenses of the Society	39,635,000	1,585,400

This sum is reckoned to be amply sufficient, since the losses by hail do not amount annually to more than 35 or 36 millions of francs on an average. The statistical returns previously alluded to, for the 26 years, 1826 to 1851 inclusive, represent the losses by hail to be 984,292,849 fr., or an average of 35,153,316 fr. (about £1,400,000).

The calculations above given are based upon the number of communes struck or not struck previous to the end of 1851. Since then, 1,100 more cases of visitation by this scourge have occurred in communes, and a considerable augmentation of the contributions would be required; but if, in the first instance, they should be somewhat high, they might afterwards be reduced as experience permitted. The classification by communes would, of course, be liable to changes and corrections. Thus, a commune struck for the first time would have to be placed in its proper topographical position, and future contracts be thereafter governed by the corresponding rates, without prejudice to existing contracts. It would be the duty of the council of administration to revise and regulate the classification of the communes from year to year, according to the number of times which they suffer from hail; and to rectify errors or omissions from time to time, by amending the new contracts entered into, but not disturbing the old.

II. *Insurance against Frosts.*—The losses by frost which have been relieved by Government aid amounted, from 1826 to the end of 1851, to 217 millions of francs (£8,680,000), or about 8 millions of francs (£320,000) per annum; but no claim was made for indemnity for heavy losses of this kind from about 20 departments, amongst which may be noticed the Départements du Midi, de la Corrèze, de la Gironde, du Gard, de l'Hérault, des Bouches du Rhône. In 1830 the frost occasioned more than 29 millions of francs (£1,160,000) losses. In the Bouches du Rhône the olive harvest was entirely destroyed. The losses, from 1826 to 1851, were, according to the formal statements for this department, 31 millions of francs (£1,240,000); for the Département de l'Hérault, 26 millions of francs (£1,040,000); for the Département du Gard, 16 millions of francs (£640,000); and for the Département de la Gironde, 10 millions of francs (£400,000). There are only 8 millions of francs (£320,000) for La Corrèze, and there are only 20 departments in which the losses by frosts exceeded 2 millions (£80,000) in the 26 years—that is to say, 66 departments have continued much below the average of 100,000 fr. (£4,000) per annum.

Nevertheless, it is quite certain that great ravages are caused by frost in the departments of the centre and the north of France, upon the cereals, and especially upon the potato crops, at a particular period of growth. The cultivators of these crops, perhaps, are not so ready with complaints, because the effects of the frosts being principally felt when the plants are young, the immediate loss may be repaired by a change of temperature, or because the season may allow of a fresh sowing and the renewal of the crop.

It must also be considered, that sometimes the seasons are so intemperate as to cause a general destruction not to be included within the usual limits of assurance, such as drought or continued rains. The consequence may be a scarcity, which may enhance the price of grain; and as the price rises in a much greater proportion than the diminution of the crop, the cultivator may not be so great a loser as at first sight appears.

These considerations give rise to the reflection that it would be better to restrict this class of assurance to certain plants, such as vines, olives, &c.; or, rather, that the assurance should only be undertaken as an experiment, for if it happened that a frost should occur which would affect the greater part of France, the fund might be subjected to demands far beyond the capabilities of ordinary assurance, and great embarrassment would be the result.

But if insurance against frosts is to be extended to all the crops liable to be affected, it would include the agricultural products insurable against hail, deducting therefrom meadow lands, woods and forests, and reducing the insurable property from 6 to 4 milliards (£240,000,000 to £160,000,000).

As to the annual losses occasioned by frost, there can be no doubt that they greatly exceed the amount declared to the prefects of departments. There is every reason to think, that, if they were fully proved, they would exceed the losses by hail; but, considering the period of the year in which the effects would be generally felt, the damage might, at least, partly be repaired. Making allowance for these deductions, the amount of annual indemnity required for the restoration of the damage may be safely computed at about 20 millions of francs (£800,000).

The amount of total insurable value being 4 milliards, and the losses 20 millions of francs, the contribution to meet the losses would be about 5 fr. in 1,000 fr. of values insured; and, adding 50 centimes for cost of management, the full charge would be 5 fr. 50 c. per 1,000 fr. = 11s. per cent.

III. *Insurance against Inundations.*—There is no occasion to defend the topographical distribution of this kind of risk. It is evident that the more frequently a commune has been subject to inundation, the more liable it will be to a recurrence of the event.

But the classification by communes is not in itself sufficient, since in those most liable to inundations there are localities which, by their elevation, are altogether, or almost, free from its effects.

Those localities which are entirely free may be considered as not likely to be brought within the limits of insurance. As to those parts which are more exposed, it must be left to the judgment of the committee for the arrondissement, or of the general manager, to class them according to their situations, 1, 2, or 3 degrees, or more, below the average of the whole commune.

The following table (Table II.) exhibits, according to the nature of the assurable values and the situation of the commune, the contribution applicable to each degree of risk, including the cost of management.

TABLE II.—*Classification of Products, &c. for Insurance against the Risks of Inundation, showing the Rate per Cent., including Costs of Management.*

	(1) Communes not suffered.	(2) Suffered Once.	(3) Twice.	(4) Three times.	(5) Four times.	(6) Five times.	(7) Six times.	(8) Seven times.	(9) Eight times.	(10) Nine times.	(11) Ten times.	(12) Eleven times or more.
Number of Communes which have suffered, from 1826 to the end of 1851.	—	5,344	2,105	1,008	591	358	342	158	87	48	23	46
Class I.—Lands, plains, meadows, &c. washed away or destroyed. ....	.01	.03	.04	.05	.06	.07	.08	.09	.10	.11	.12	.13
Class II.—Forests, trees, hedges, and cut wood. ....	.02	.06	.08	.10	.12	.14	.16	.18	.20	.22	.24	.26
Class III.—Buildings, houses, enclosures, walls, &c. ....	.03	.09	.12	.15	.18	.21	.24	.27	.30	.33	.36	.39
Class IV.—Borders of rivers and canals, dykes, constructions in masonry connected with rivers, and boats. ....	.04	.12	.16	.20	.24	.28	.32	.36	.40	.44	.48	.52
Class V.—Constructions floating on rivers, or built on piles therein. ....	.05	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65
Class VI.—Herbage and harvests, natural or arti- ficial meadows, plants used for fodder which are not in general destroyed by inundation till nearly ripe (except plants grown for seed). ....	.06	.18	.24	.30	.36	.42	.48	.54	.60	.66	.72	.78
Class VII.—Furniture, clothing, moveable effects, or moveable farm utensils. ....	.07	.21	.28	.35	.42	.49	.56	.63	.70	.77	.84	.91
Class VIII.—Cattle, horses, poultry, &c. in farm- yard or stables. ....	.08	.24	.32	.40	.48	.56	.64	.72	.80	.88	.96	1.04
Class IX.—Harvests in barns—provisions and merchandise not easily removed, and likely to be entirely destroyed by inundation. ....	.10	.30	.40	.50	.60	.70	.80	.90	1.00	1.10	1.20	1.30
Class X.—Vines, orchard trees, and shrubs. ....	.12	.40	.60	.80	1.00	1.20	1.40	1.60	1.80	2.00	2.20	2.40
Class XI.—Other products—cereal crops, rape seed, marsh products, garden crops, &c. ....	.16	.60	.90	1.20	1.50	1.80	2.10	2.40	2.70	3.00	3.30	3.60

The figures in the preceding columns represent the number of communes exposed to the risk of inundation in each year from 1826 to the end of 1851, forming a total of 10,010 communes. Several of these communes have been entirely inundated; others only partially. From these data we will endeavour, in the following summary, to ascertain what portion of the property of France, fixed or moveable, is subject to this plague. The two first columns give, by approximation, the quantity and value of insurable property, and the third the contribution equivalent to each class of value if it was situated in a commune only once smitten. This proportion has been taken as being rather below the real average, since, out of 10,010 communes, 5,344 only were smitten but once. Since 1851, the number of losses by inundations has increased. The fourth column shows the total contributions for values insured.

	Fr.	£	At per cent.	Fr	£
Class I.—Superficial products liable to be washed away (the value of cultivated lands in France is 60 milliards of francs)	2,000,000,000	80,000,000	·03	600,000	24,000
Class II.—Woods (the revenue of France in woods, was, in 1841, 200 millions of francs, or a capital of 5 milliards)	180,000,000	7,200,000	·06	108,000	4,320
Class III.—Buildings	1,850,000,000	74,000,000	·09	1,665,000	76,600
Class IV.—Borders of rivers	100,000,000	4,000,000	·12	120,000	4,800
Class V.—Floating buildings	8,000,000	320,000	·15	12,000	480
Class VI.—Grass, hay (the green crops and hay of France were estimated, in 1841, at 900 millions of francs)	200,000,000	8,000,000	·15	360,000	14,400
Class VII.—Furniture, clothing (for the whole of France there are, at least, 10 milliards of francs)	312,000,000	12,480,000	·21	655,200	26,208
Class VIII.—Cattle	250,000,000	10,000,000	·24	600,000	24,000
Class IX.—Harvests housed, merchandise (the harvests housed in all France are worth about 6 milliards of francs; merchandise, at least as much)	2,000,000,000	80,000,000	·30	6,000,000	240,000
Class X.—Vines (the vines were worth, for all France, according to the statistics of 1841, 400 millions of francs)	100,000,000	4,000,000	·40	400,000	16,000
Class XI.—Cereal and other products (for all France, valued at 4 milliards of francs)	1,000,000,000	40,000,000	·60	6,000,000	240,000
	8,000,000,000	320,000,000		16,520,200	660,808

According to these statistics, the contributions for insurance against inundations would produce 16,520,200 fr.; but, considering that there is a much higher value smitten twice and upwards than what has never suffered at all, we should raise this total to at least 19 millions; from which, deducting 4 millions for the charges of administration of 8 milliards at 10 centimes, there would remain 5 millions (£600,000) as a sufficient sum to meet the annual risks and costs of the Society.

According to the statistical returns, the actual average of losses caused by inundations, from 1826 to 1851, was 11,284,493 fr. (about £451,380), and even this is considered an exaggerated statement. The inundations of 1856, which caused losses amounting to about 140 millions of francs (£5,600,000), have greatly augmented this average, but would not, probably, bring it above 15 millions of francs.

V. *Insurance against Mortality amongst Cattle*.—M. Loiset, in his Report to l'Assemblée Nationale, in 1849, fixed the annual average of these losses at 40 millions of francs (£1,600,000), but this may be deemed somewhat exaggerated, and that 35 millions (£1,400,000) would be nearer the truth. The proprietor, however, would be himself on the risk to the extent of one-fifth, and the salvage might amount to one-twentieth, which would reduce the net loss to 26,250,000 fr. (£1,050,000).

The following table gives the contribution for each degree of risk, the insurable value in each class, and the annual product of the contributions. According thereto, it will be seen that

The total annual contributions would amount to at least	Fr.	£
	28,000,000	= 1,120,000
From which, deducting charges of administration, at		
5 centimes per 100 fr., on 2 milliards of value	1,000,000	40,000
	27,000,000	1,080,000

there would remain more than sufficient to meet an annual loss of 26,250,000 fr. (£1,050,000), and the other expenses of the Company.

	Contributions per cent.	Value of each Class.		Total Amount of Contributions.	
		Fr.	£	Fr.	£
Class I.—Horses, mules, asses, oxen employed in agricultural labour, milch cows at pasture or stalled in the country, goats, horses, and mules, for saddle or harness	1	1,000,000,000	= 40,000,000	10,000,000	= 400,000
Brood mares, cows, &c.	1	96,000,000	3,840,000	960,000	38,400
Class II.—Pigs	1	200,000,000	8,000,000	2,000,000	80,000
Class III.—Sheep, lambs	2	400,000,000	16,000,000	8,000,000	320,000
Class IV.—Horses of the gendarmerie and officers of the army	1½	4,000,000	160,000	60,000	2,400
Class V.—Horses and mules for riding or draught, oxen for draught; stallions, bulls, and rams; milch cows kept out of the towns	2½	150,000,000	6,000,000	3,375,000	135,000
Class VI.—Horses and mules belonging to carriers, the mail post diligences, public vehicles or barges, or livery stables; milch cows kept in towns or their environs . .	3	150,000,000	6,000,000	4,500,000	180,000
		2,000,000,000	80,000,000	28,895,000	1,155,800

But the risk of mortality should not be exclusively calculated on the class of animals employed or the nature of the work in which they are

engaged, but regard should be had, to a certain extent, to the localities which they inhabit, and especially to the conditions of nourishment, care, and shelter which they receive.

For these circumstances, the regulations prescribe an increase or diminution of the rates—the council of administration diminishing, by one to two-fifths, the contributions of the communes which, since 1826, have not, according to the statistics in the possession of the Society, been once subject to an epidemic malady. The rate may be diminished by one-fifth only if the commune during the same period has been only once visited by an epidemic, and where the health of the cattle is generally good.

The rates may be increased by one-fifth if, since 1826, the commune has been visited by epidemics 2 to 4 times; by two-fifths, if from 5 to 8 times; by three-fifths, if from 8 to 12 times; by four-fifths, if from 13 to 18 times; and, if more than 18 times, the rates may be doubled.

There is no reason to fear that the power of diminishing the rates is likely to lead to the general product of the revenue being inadequate to meet the annual losses and expenses, since the cases of augmentation will be much more numerous than those of diminution; and, whilst the former is obligatory, the latter is only permissive.

General remarks.—At the present time, out of 6 milliards of francs (£240,000,000) of agricultural produce exposed to risk from hail, no more than 200 millions (£8,000,000) are assured.

Of cattle and other agricultural stock, valued at 2 milliards of francs (£80,000,000), only 10 millions (£400,000) is covered by insurance.

Insurance against inundations is unknown, as yet, in France; so also is insurance against frosts.

The rates for agricultural produce insured against hail, are, in general, averaged at $1\frac{1}{2}$ per cent., yet the losses are far from being completely provided against; but, according to the system of classification now proposed, the assured would only pay annually for the lowest rate against hail and in communes the least exposed, 4 centimes per 100 fr. (4 in 10,000), including the charges of administration; whilst the average contributions would amount to no more than $66\frac{1}{2}$ centimes (less than half the present average).

Cattle, &c., insured against epidemics by existing Societies, pay, on an average, $4\frac{1}{4}$ per cent. of value; and yet, for the most part, the indemnity is less than the loss. By the scheme now proposed, the rate would be 1·24 per 100 fr. value of agricultural stock; and it may be reasonably expected that a vast increase of insurance would result therefrom.

	Fr.	£
By present rates, the 6 milliards of francs of insurable value against hail would cost		
90 millions of francs; and the 2 milliards of cattle insurance another 90 millions .	180,000,000	= 7,200,000
By the scheme proposed, the premiums would be only 30 millions of francs for hail, and 27 millions for cattle insurance . . .	66,000,000	2,640,000
Annual saving to agriculturists .	114,000,000	4,560,000

Yet, in the latter case, the indemnities would not fail to be paid in full, because the total of the annual contributions exceed, by several millions of francs, the annual average losses and the total costs of administration.

As for the rates of insurance against inundations, they would be equally

light, since, for insurable values the most likely to be destroyed by inundations, such as the cereal crops, &c., the average would be under 60 centimes per 100 fr.

The rates for insurance against frosts, if well regulated, and the risk properly defined, would be equally moderate.

The Government distributes, every year, amongst those who suffer from ordinary losses by hail, frost, inundation, cattle epidemics, fire and other accidents, 2 millions of francs, independent of those extraordinary cases of such calamities for which special funds are voted. To this we must add as much more for remission of taxes, or about 4 millions of francs for ordinary relief. But, from 1838 to 1853, the amount of ordinary losses reported to the Minister was 1 milliard and 84 millions of francs. If we compute, then, the relief accorded by the Government at 4 millions a year, the total for that period would only be 64 millions, or 3·42 per cent., a scarcely appreciable part of the damage occasioned.

The adoption of the system proposed would be a veritable boon to France; and the establishment of insurance at its true rate, and the very considerable reduction for the lower class of risks, would draw in a vast amount of property now uninsured.

At present, the farmer who has seen his crops perish, or his flocks and herds swept away by epidemics, has no resource but in borrowing; and loans, often usurious, can lead to nothing but decline and ruin.

By insurance, the most disastrous losses are immediately repaired; and the establishment of a sound system for the benefit of agriculture would be, in France, an honour to the age in which it was created and to the Government by which it was founded.

CORRESPONDENCE.

THE PAMPHLET RECENTLY PUBLISHED BY THE SCOTTISH EQUITABLE SOCIETY.

To the Editor of the Assurance Magazine.

SIR,—The pages of the *Assurance Magazine* are fortunately not often occupied with the discussion of topics relating to particular Companies, and I should not have ventured to ask you to deviate from your usual practice in this respect, by inserting this letter, did I not feel that some notice should be taken of a pamphlet circulated amongst Insurance Offices, purporting to be *A Statement, by the Directors of the Scottish Equitable Life Assurance Society, to the Members of the Society, relative to the Case W. C. Fowler and others v. the Scottish Equitable*. I say the pamphlet purports to be a statement by the Directors, for I can hardly believe that any board of directors would have adopted the questionable practice which the writer of this pamphlet has done, of condemning every person who has the misfortune to differ with him in opinion on the merits of this case.

The Scottish Equitable is one of those Offices which announces that its “policies may, after being of five years’ endurance, be declared indisputable on any ground whatever, and the assured be entitled to travel or reside